

Department of Energy

§ 431.75

(i) The vertical height of the air-curtain (or glass in a transparent door) and (ii) The largest overall width of the case, when viewed from the front.

[70 FR 60414, Oct. 18, 2005, as amended at 74 FR 1140, Jan. 9, 2009; 78 FR 62993, Oct. 23, 2013]

Subpart D—Commercial Warm Air Furnaces

SOURCE: 69 FR 61939, Oct. 21, 2004, unless otherwise noted.

§ 431.71 Purpose and scope.

This subpart contains energy conservation requirements for commercial warm air furnaces, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

[69 FR 61939, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005]

§ 431.72 Definitions concerning commercial warm air furnaces.

The following definitions apply for purposes of this subpart D, and of subparts J through M of this part. Any words or terms not defined in this Section or elsewhere in this part shall be defined as provided in Section 340 of the Act.

Basic model means all units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

Commercial warm air furnace means a warm air furnace that is industrial equipment, and that has a capacity (rated maximum input) of 225,000 Btu per hour or more.

Thermal efficiency for a commercial warm air furnace equals 100 percent minus percent flue loss determined using test procedures prescribed under § 431.76.

Warm air furnace means a self-contained oil-fired or gas-fired furnace designed to supply heated air through ducts to spaces that require it and includes combination warm air furnace/

electric air conditioning units but does not include unit heaters and duct furnaces.

[69 FR 61939, Oct. 21, 2004, as amended at 76 FR 12503, Mar. 7, 2011]

EFFECTIVE DATE NOTE: At 78 FR 79598, Dec. 31, 2013, § 431.72 was amended by revising the definition of “basic model”, effective Jan. 30, 2014. For the convenience of the user, the revised text is set forth as follows:

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* * * * *

Basic model means all commercial warm air furnaces manufactured by one manufacturer within a single equipment class, that have the same nominal input rating and the same primary energy source (e.g. gas or oil) and that do not have any differing physical or functional characteristics that affect energy efficiency.

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TEST PROCEDURES

§ 431.75 Materials incorporated by reference.

(a) *General.* DOE incorporates by reference the following test procedures into subpart D of part 431. The materials listed have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to the listed materials by the standard-setting organization will not affect the DOE regulations unless and until such regulations are amended by DOE. Materials are incorporated as they exist on the date of the approval, and a notice of any changes in the materials will be published in the FEDERAL REGISTER. All approved materials are available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. Also, these materials are available for inspection at U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, 6th Floor, 950 L’Enfant Plaza SW.,

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Washington, DC 20024, (202) 586–2945, or go to: http://www1.eere.energy.gov/buildings/appliance_standards/. The referenced test procedure standards are listed below by relevant standard-setting organization, along with information on how to obtain copies from those sources.

(b) ANSI. American National Standards Institute. 25 W. 43rd Street, 4th Floor, New York, NY 10036, (212) 642–4900, or go to: <http://www.ansi.org>.

(1) ANSI Z21.47–1998, (“ANSI Z21.47–1998”), “*Gas-Fired Central Furnaces*,” approved by ANSI on June 9, 1998, IBR approved for § 431.76.

(2) ANSI Z21.47–2006, (“ANSI Z21.47–2006”), “*Gas-Fired Central Furnaces*,” approved on July 27, 2006, IBR approved for § 431.76.

(3) Reserved.

(c) ASHRAE. American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc., 1791 Tullie Circle, NE., Atlanta, Georgia 30329, (404) 636–8400, or go to: <http://www.ashrae.org>.

(1) ASHRAE Standard 103–1993, sections 7.2.2.4, 7.8, 9.2, and 11.3.7, “*Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers*,” approved on June 26, 1993, IBR approved for § 431.76.

(2) [Reserved]

(d) HI. Hydronics Institute Division of AHRI, 35 Russo Place, P.O. Box 218, Berkeley Heights, NJ 07922, (703) 600–0350, or go to: <http://www.ahrinet.org/hydronics+institute+section.aspx>.

(1) HI BTS–2000, sections 8.2.2, 11.1.4, 11.1.5, and 11.1.6.2, “*Method to Determine Efficiency of Commercial Space Heating Boilers*,” published January 2001, IBR approved for § 431.76.

(2) [Reserved]

(e) UL. Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062, (847) 272–8800, or go to: <http://www.ul.com>.

(1) UL 727 (UL 727–1994), “*Standard for Safety Oil-Fired Central Furnaces*,” published on August 1, 1994, IBR approved for § 431.76.

(2) UL 727 (UL 727–2006), “*Standard for Safety Oil-Fired Central Furnaces*,” approved April 7, 2006, IBR approved for § 431.76.

(3) [Reserved]

[77 FR 28987, May 16, 2012]

§ 431.76 Uniform test method for the measurement of energy efficiency of commercial warm air furnaces.

(a) This section covers the test procedures you must follow if, pursuant to EPCA, you are measuring the steady-state thermal efficiency of a gas-fired or oil-fired commercial warm air furnace with a rated maximum input of 225,000 Btu per hour or more. Where this section prescribes use of ANSI Z21.47 or UL 727, (incorporated by reference, see § 431.75), perform only the procedures pertinent to the measurement of the steady-state efficiency. Before May 13, 2013, where you see instructions to use ANSI Z21.47–2006 or UL 727–2006 in this section, you may use the relevant procedures in ANSI Z21.47–1998 or UL 727–1994. On or after May 13, 2013, you must use the relevant procedures in ANSI Z21.47–2006 or UL 727–2006.

(b) *Test setup*—(1) *Test setup for gas-fired commercial warm air furnaces*. The test setup, including flue requirement, instrumentation, test conditions, and measurements for determining thermal efficiency is as specified in sections 1.1 (Scope), 2.1 (General), 2.2 (Basic Test Arrangements), 2.3 (Test Ducts and Plenums), 2.4 (Test Gases), 2.5 (Test Pressures and Burner Adjustments), 2.6 (Static Pressure and Air Flow Adjustments), 2.39 (Thermal Efficiency) (note, this is 2.38 in ANSI Z21.47–1998 (incorporated by reference, see § 431.75)), and 4.2.1 (Basic Test Arrangements for Direct Vent Control Furnaces) of ANSI Z21.47–2006 (incorporated by reference, see § 431.75). The thermal efficiency test must be conducted only at the normal inlet test pressure, as specified in section 2.5.1 of ANSI Z21.47–2006, and at the maximum hourly Btu input rating specified by the manufacturer for the product being tested.

(2) *Test setup for oil-fired commercial warm air furnaces*. The test setup, including flue requirement, instrumentation, test conditions, and measurement for measuring thermal efficiency is as specified in sections 1 (Scope), 2 (Units of Measurement), 3 (Glossary), 37 (General), 38 and 39 (Test Installation), 40 (Instrumentation, except 40.4 and 40.6.2 through 40.6.7, which are not required for the thermal efficiency test), 41 (Initial Test Conditions), 42 (Combustion